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DUAL FIELD METAL DETECTOR

ABSTRACT

A metal detector has multiple transmit and receive coils for producing multiple detection fields. In one embodiment, a transmit coil is combined with two receive coils in a configuration that enables the detector to generate two detection fields, one being substantially narrower than the other. The transmit coil is inductively balanced with the receive coils such that the transmit coil induces minimum signals in each of the two receive coils. A metal target lying within a detection field changes the coupling between transmit and receive coils and produces signals in the receive coils. The received signals are utilized to identify the target's presence within one or both of the detection fields.

The use of two detection fields, substantially different in size, enables the metal detector to search over a broad area for object detection and then narrow the search to more precisely locate the detected object. A further embodiment has two transmit coils and one receive coil and likewise produces a broad and a narrow detection field.

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